

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND
INTERFERENCES

In re application of)	Examiner: P. HSIEH
J. ROSENFELD)	
)	Art Unit: 2618
Serial No.: 10/580,497)	
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METHOD AND)	
APPARATUS)	
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Attorney Docket No.:)	
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BRIEF ON APPEAL

CERTIFICATE OF ELECTRONIC TRANSMISSION

I certify that this **BRIEF ON APPEAL** and accompanying documents in connection with U.S. Serial No. 10/580,497 is being filed on the date indicated below by electronic transmission with the United States Patent and Trademark Office via the electronic filing system (EFS-Web).

Date

I. STATEMENT OF REAL PARTY IN INTEREST (41.37(f))

The real party in interest for this appeal and the present application is Koninklijke Philips Electronics, N.V.

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II. STATEMENT OF RELATED CASES (41.37(g))

None.

III. JURISDICTIONAL STATEMENT (41.37(h))

The Board has jurisdiction under 35 U.S.C. 134(a).

The Examiner mailed a final rejection on March 4, 2009, setting a three-month shortened statutory period for response.

The time for responding to the final rejection expired on June 4, 2009. Rule 134.

A notice of appeal was filed on June 3, 2009.

The time for filing an appeal brief will expire on August 3, 2009.

The appeal brief is being filed on the date set forth on the Certificate of Transmission.

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V. TABLE OF AUTHORITIES (41.37(j))

Not Applicable.

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VI. STATUS OF AMENDMENTS (41.37(l))

Amendment D filed April 29, 2009 was entered.

Amendment E accompanies this Brief. Because it corrects minor, previously undetected, antecedent basis issues, it is believed it will be entered.

VII. GROUNDS OF REJECTION TO BE REVIEWED (41.37(m))

Whether claims 2-3, 17, 20-22, and 26 are anticipated in the sense of 35 U.S.C. § 102 by Goren (US 7,069,025).

Whether claims 4-6, 23, and 24 are patentable in the sense of 35 U.S.C. § 103 over Goren as modified by Diener (US 7,006,838).

Whether claim 14 is patentable in the sense of 35 U.S.C. § 103 over Goren, taken alone.

Whether claim 17 sets forth statutory subject matter in the sense of 35 U.S.C. § 101.

Whether claim 27 is patentable.

VIII. STATEMENT OF FACTS (41.37(n))

1. Claim 2 calls for applying a test on received signals to determine whether a signal level of the received signal is above a threshold (claim 2, lines 4-7).
2. The Examiner asserts that this limitation is anticipated by column 22, lines 49-59 and Figures 15 and 15A of Goren. (Advisory Action, page 2, paragraph a; final rejection, paragraph 5).
3. Goren has a correlation function $C(\tau)$ which has a first peak 502 corresponding to a line of sight peak representing signals that were received directly along a line of sight from the transmitter and a multipath peak 504 which represents signals which are reflected one or more times between leaving the transmitter and being received. (Goren Figure 15A; column 22, lines 43-59).
4. If the correlation signal $C(\tau)$ is of sufficient quality, the line of sight 502 can be separated from the multipath peak 504 (Goren, column 22, lines 36-42).
5. Claim 2 further calls for selecting one of a correlation processing operation and a leading edge processing operation in accordance with the applied test. (Claim 2, lines 9-11).

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6. Goren applies the same leading edge processing operation to determine the time of arrival (TOA), either the line of sight peak 502 or the multipath peak 504 are separable or not. (Goren, column 22, lines 43-59).
7. If the peaks are not separable, Goren performs a leading edge detection 585 on the merged peak. (Column 22, lines 36-59).
8. If the peaks are not merged, Goren uses a channel estimation step 1590 to separate the line of sight peak 1502 from the multipath peak 1504 and uses the same, i.e., leading edge processing operation, but performed only on the line of sight peak 1502 to determine the time of arrival. (Goren, column 22, lines 36-59).
9. Claim 3 calls for the correlation processing operation to be performed in response to the received signal being below the threshold value. (Claim 3, lines 3 and 4).
10. Goren performs leading edge detection 1585 in response to the separation between the line of sight and the multipath peaks being below a minimum separation.
11. Claim 4 calls for performing a second test to determine whether a leading edge gradient is above a gradient threshold value. (Claim 4, lines 3-5).

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12. The Examiner refers the applicant to Goren, column 22, lines 43-59 and Figures 15 and 15A and to Diener, column 8, lines 41-46. (Advisory Action, page 2, paragraph c; final rejection, paragraph 8).
13. Goren only suggests a single test 1575 (Goren, column 22, lines 43-59; Figure 15).
14. Diener, discloses a peak detector that tests whether a power level is above a threshold, but does not suggest a second test that tests whether a signal level of the received signal is above a threshold value. (Diener, column 8, lines 41-46).
15. Claim 4 calls for the second testing step to include determining whether a leading edge gradient is above a threshold gradient value. (Claim 4, lines 4-6).
16. Rather than detecting whether a gradient value is greater than a threshold, Diener determines whether a power level is above the threshold. (Diener, column 8, lines 41-46).
17. Claim 6 further calls for selecting the correlation processing operation in response to the leading edge gradient being above a gradient threshold value. (Claim 6, lines 3 and 4).

18. Claim 5 calls for selecting a correlation processing operation when the level of the received signal is below a threshold value and selecting a leading edge processing operation when a leading edge gradient is below a gradient threshold value. (Claim 5, lines 11-16).
19. The Examiner refers the applicant to Goren, column 22, lines 43-59 and Figures 15 and 15A and Diener, column 8, lines 41-46. (Advisory Action, page 2, paragraph b and final rejection, paragraph 8).
20. In the Advisory Action, page 2, paragraph e, the Examiner further explains that he proposes to replace the test 575 of Figure 15 of Goren with the peak detector of Diener.
21. Claim 14 calls for applying at least one test to select a processing operation and then measuring a gradient using the formula $i=Cdv/Dt$. (Claim 14, lines 4-15).
22. The Examiner asserts that measuring a gradient by this formula is met by Goren taken alone. (Advisory Action, page 2, section f; final rejection, section 10).

23. Goren has a testing step 1575 based on whether processing operation 1585 or processing operation 1590 is selected. (Goren, column 22, lines 49-56, Figure 15).
24. Because a digital waveform is unlikely to have sufficient sample points to determine a location of the point of deflection, an analog signal is preferable, preferably the equation $i=Cdv/Dt$. (Present application, page 7, line 30 - page 8, line 5).
25. Claim 17 is directed to an article of manufacture, one of the categories of inventive subject matter specifically authorized by 35 U.S.C. § 101.
26. Claim 17 calls for applying a test to select among two selectable processing operations: a correlation processing operation and a leading edge processing operation. (Claim 17, lines 5-9).
27. Claim 20 calls for a testing means for testing the received radio frequency signals which have not yet been subject to a correlation processing operation. (Claim 20, lines 6-11).
28. Claim 23 calls for a means to test to signals with signal level above the level threshold value to determine whether a signal has a leading edge gradient above a gradient threshold value (Claim 2, lines 3-5).

29. Claim 27 calls for selecting a correlation processing operation in response to a signal level of the received signal being below a threshold value. (Claim 27, lines 9-11).
30. Claim 27 calls for selecting the leading edge processing operation in response to the leading edge gradient value being below a gradient threshold value. (Claim 27, line 15-17).
31. claim 27 calls for selecting a correlation processing operation in response to the leading edge gradient value being above the gradient threshold value. (Claim 27, lines 18-10).

IX. ARGUMENT (41.37(o))

A. Claim 2 is Not Anticipated By Goren

Claim 2 calls for applying a test on received signals to determine whether a signal level of the received signal is above a threshold (claim 2, lines 4-7). The Examiner asserts that this limitation is anticipated by column 22, lines 49-59 and Figures 15 and 15A of Goren. (Advisory Action, page 2, paragraph a; final rejection, paragraph 5). The applicant disagrees.

Goren has a correlation function $C(\tau)$ which has a first peak 502 corresponding to a line of sight peak representing signals that were received directly along a line of sight from the transmitter and a multipath peak 504 which represents signals which are reflected one or more times between leaving the transmitter and being received. (Goren Figure 15A; column 22, lines 43-59). If the correlation signal $C(\tau)$ is of sufficient quality, the line of sight 502 can be separated from the multipath peak 504 (Goren, column 22, lines 36-42).

Thus, Goren calls for applying a test to determine whether the line of sight peak 502 is separated from the multipath peak 504 rather than detecting whether signal level is above a threshold value.

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Claim 2 further calls for selecting one of a correlation processing operation and a leading edge processing operation in accordance with the applied test. (Claim 2, lines 9-11). By contrast, Goren applies the same leading edge processing operation to determine the time of arrival (TOA), either the line of sight peak 502 or the multipath peak 504 are separable or not. (Goren, column 22, lines 43-59). More specifically, if the peaks are not separable, Goren performs a leading edge detection 585 on the merged peak. (Column 22, lines 36-59). On the other hand, if the peaks are not merged, Goren uses a channel estimation step 1590 to separate the line of sight peak 1502 from the multipath peak 1504 and uses the same, i.e., leading edge processing operation, but performed only on the line of sight peak 1502 to determine the time of arrival. (Goren, column 22, lines 36-59). Thus, Goren uses the test to determine whether to apply the leading edge detection operation to merged peaks 1504 and 1502 or on only line of sight peak 1502 and does not perform one of a correlation processing operation and a leading edge processing operation in response to the test to determine whether the line of sight peak 1502 and the multipath peak 1504 are separate.

Because claim 2 calls for selecting between correlation processing and leading edge processing, whereas Goren selects between performing

leading edge processing on the line of flight peak 502 or the merged peak, it is submitted that claim 2 is not anticipated by Goren.

B. Claim 3 is Not Anticipated By Goren

Claim 3 calls for the correlation processing operation to be performed in response to the received signal being below the threshold value. (Claim 3, lines 3 and 4). By contrast, Goren performs leading edge detection 1585 in response to the separation between the line of sight and the multipath peaks being below a minimum separation. (Goren, column 22, lines 58 and 59).

Accordingly, it is submitted that claim 3 is not anticipated by Goren.

C. Claim 4 is Patentable Over Goren as Modified by Diener

After the test of claim 2, discussed above, is performed and the leading edge processing operation is selected, claim 4 calls for performing a second test to determine whether a leading edge gradient is above a gradient threshold value. (Claim 4, lines 3-5). The Examiner refers the applicant to Goren, column 22, lines 43-59 and Figures 15 and 15A and to Diener, column 8, lines 41-46. (Advisory Action, page 2, paragraph c; final rejection, paragraph 8). Goren only suggests a single test 1575 (Goren, column 22, lines 43-59; Figure 15).

Diener does not cure this shortcoming of Goren. Diener, discloses a peak detector that tests whether a power level is above a threshold, but does not suggest a second test that tests whether a signal level of the received signal is above a threshold value. (Diener, column 8, lines 41-46). Thus, Diener, like Goren, only discloses a single test. Neither discloses a second later stage test.

Further, claim 4 calls for the second testing step to include determining whether a leading edge gradient is above a threshold gradient value. (Claim 4, lines 4-6). Rather than detecting whether a gradient value is greater than a threshold, Diener determines whether a power level is above the threshold. (Diener, column 8, lines 41-46). Thus, Diener, like Goren, fails to disclose or fairly suggest a test based on whether a leading edge gradient is above a gradient threshold.

Because neither Diener nor Goren suggest a second test, much less a leading edge gradient second test, it is submitted that claim 4 distinguishes patentably and unobviously over the references of record

**D. Claim 6 Distinguishes Patentably Over
Goren as Modified by Diener**

In addition to the limitations of parent claims 2 and 4 discussed above, claim 6 further calls for selecting the correlation processing operation in response to the leading edge gradient being above a gradient

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threshold value. (Claim 6, lines 3 and 4). Thus, claim 6 when read with its parent claims 2 and 4 calls for performing a first test, selecting either leading edge or correlation processing based on the first test. Further, after the first test and one of the correlation processing and leading edge processing are selected, a second test is performed based on a leading edge gradient. Then if the leading edge gradient is above the gradient threshold value, the correlation processing operation is again selected. As discussed in conjunction with claim 4, neither Goren nor Diener disclose or fairly suggest such a two stage testing method. Moreover, claim 6 calls for the correlation processing operation to be selected in response to the leading edge gradient being too steep in response to the second test. Neither Goren nor Diener suggest selecting a correlation processing operation in response to a leading edge gradient being too steep or indeed based on any other characteristic of a leading edge gradient.

In section E on page 2 of the Advisory Action, the Examiner proposes to substitute the peak detection of Diener for test 1575 of Figure 15 of Goren. Such a substitution of one test for a second test results in a single testing step, not two stages of testing steps as called for in claims 4 and 6.

Accordingly, it is submitted that claim 6 distinguishes patentably over the references of record.

E. Claim 5 Distinguishes Patentably Over Goren in View of Diener

Claim 5 calls for selecting a correlation processing operation when the level of the received signal is below a threshold value and selecting a leading edge processing operation when a leading edge gradient is below a gradient threshold value. (Claim 5, lines 11-16). The Examiner refers the applicant to Goren, column 22, lines 43-59 and Figures 15 and 15A and Diener, column 8, lines 41-46. (Advisory Action, page 2, paragraph b and final rejection, paragraph 8). In the Advisory Action, page 2, paragraph e, the Examiner further explains that he proposes to replace the test 575 of Figure 15 of Goren with the peak detector of Diener.

First, if the testing step 1575 of Goren is a peak detection operation as described by Diener, and the choice as to whether to use the line of sight peak or the merged peak are both based on the same criterion. There is no suggestion in Goren or Goren as modified by Diener that one could or should select correlation processing in response to one criteria and leading edge processing in response to a second criteria.

Further, claim 5 calls for one of the criteria to be when a leading edge gradient is below a gradient threshold value. Contrary to the Examiner's assertions, the peak detector of Diener determines the peak power level of the received signal and not whether a gradient is above or below a threshold value.

Not only does Goren modified by Diener uses a peak detection criteria rather than the gradient slope criteria called for by claim 5, but Goren as modified by Diener does not select between leading edge processing and correlation processing. Instead, as previously discussed, Goren as modified selects between performing leading edge detection on the line of sight signal peak or a merged line of sight and multi-path signal peak.

Accordingly, it is submitted that claim 5 distinguishes patentably over Goren as modified by Diener.

F. Claim 14 Distinguishes Patentably Over Goren

Claim 14 calls for applying at least one test to select a processing operation and then measuring a gradient using the formula $i=Cdv/Dt$. (Claim 14, lines 4-15). The Examiner asserts that measuring a gradient by this formula is met by Goren taken alone. (Advisory Action, page 2, section f; final rejection, section 10). Goren has a testing step 1575 based

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on whether processing operation 1585 or processing operation 1590 is selected. (Goren, column 22, lines 49-56, Figure 15).

First, after making the decision between two processing operations, Goren does not select nor measure a gradient or perform a gradient processing operation.

Second, because a digital waveform is unlikely to have sufficient sample points to determine a location of the point of deflection, an analog signal is preferable, preferably the equation $i=Cdv/Dt$. (Present application, page 7, line 30 - page 8, line 5). Not only does Goren use a digital rather than analog processing, Goren fails to realize this potential problem, much less provide a solution to it, much less recognize that the well-known relationship between current and voltage can provide a solution.

Moreover, claim 14 calls for selecting one of a correlation processing operation and a leading edge processing operation. By distinction, Goren at column 22, lines 36-59 describes selecting between performing edge detection based on a line of flight peak 502 or based on a merged time of flight and multipath peak 1504.

The Applicant previously traversed the Examiner's assertion of Official Notice and requested that the Examiner cite a reference which

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shows the use of the above-discussed formula in this context. Because the Examiner has failed to supply documentary evidence required by M.P.E.P. 2144.03(C), it is submitted that the Examiner's assertion of Official Notice should be given no patentable weight. Moreover, the failure to provide the required evidence should be taken as a concession that the assertion was erroneous.

It is submitted that virtually all claims set forth a combination of old elements. The novelty often lies in the combination or the application of an old element to solve a new problem. Just because an element may be known in other contexts, does not mean that it is known in the present context. The Examiner should not cite a reference showing a claimed element, even an old element, in the context of the claim.

Accordingly, it is submitted that claim 14 distinguishes patentably and unobviously over Goren and the other references of record.

**G. Claim 17 Complies With the Requirements
of 35 U.S.C. § 101 and is Not Anticipated By
Goren**

Claim 17 is directed to an article of manufacture, one of the categories of inventive subject matter specifically authorized by 35 U.S.C. § 101. Because the Advisory Action re-addresses and discusses all of the other rejections previously applied to the claims, but not the 35

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U.S.C. § 101 rejection, it is believed that the 35 U.S.C. § 101 rejection may stand withdrawn in the Advisory Action.

In the final rejection, the Examiner asserts that claim 17 is directed to a process. By contrast, it is submitted that a computer-readable medium is an article of manufacture and clearly is not a process.

The final rejection also makes the off-hand comment that “a computer-readable medium might be a carrier or signal”. The basis for this assertion is not understood. Claim 17 is clearly directed to a computer-readable medium and not to a carrier or a signal.

Accordingly, it is submitted that the 35 U.S.C. § 101 rejection should be withdrawn.

Claim 17 is not anticipated by Goren. Claim 17 calls for applying a test to select among two selectable processing operations: a correlation processing operation and a leading edge processing operation. (Claim 17, lines 5-9). At 1575, Goren applies a test and, based on the test, either (1) applies a leading edge detection processing operation 1585 to a multipath peak 1504 or (2) uses a channel estimation 1590 to separate out the line of sight signal peak 1502 to which the leading edge detection is applied. If the test 1575 determines that the quality is not sufficient, then Goren

performs no processing operation. Rather, Goren returns to step 1570 to process the next received signal.

Because Goren does not show all the limitations of claim 17, it is submitted that claim 17 is not anticipated by Goren.

H. Claims 20-22 and 26 Are Not Anticipated By Goren

Claim 20 calls for a testing means for testing the received radio frequency signals which have not yet been subject to a correlation processing operation. (Claim 20, lines 6-11). If the Examiner is interpreting step 1570 of Goren as a correlation processing operation, then testing step 1575 is performed subsequently on a signal that has been correlation processed.

Claim 20 calls for selecting one of a correlation processing operation and a leading edge processing operation based on the testing. By contrast, Goren either performs a leading edge detection 1585 on the multipath peak 1504 merged with the line of sight peak or separates the line of sight peak 1502 with a channel estimation 1590 and then analyzes the line of sight peak 1502 using edge detection. Thus, after the testing step 1575, Goren discloses two edge detection operations rather than an edge detection operation and a correlation processing operation.

Accordingly, it is submitted that claims 20-22 and 26 are not anticipated by Goren.

**I. Claim 23 Distinguishes Patentably Over
Goren as Modified By Diener**

In addition to the limitations of its parent claims 20-22, claim 23 calls for a means to test to signals with signal level above the level threshold value to determine whether a signal has a leading edge gradient above a gradient threshold value (Claim 2, lines 3-5). Thus, the leading edge gradient test is an additional test in addition to the signal level threshold test set forth in parent claim 22. In Goren, there is a single test 1575. There is no suggestion of performing a second test. Contrary to the Examiner's assertions, column 8, lines 41-46 of Diener do not cure this shortcoming. This section of Diener does not suggest performing two tests. It is submitted that if one were to combine the fair teachings of Goren and Diener, one would still apply a single test, probably the power level test of Diener in the Examiner's combination.

Claim 23 further calls for the second test to determine whether a leading edge gradient is above a gradient threshold level. Neither Goren, column 22, lines 43-59 nor Diener, column 8, lines 41-46 referenced by the Examiner teach or fairly suggest determining whether a leading edge gradient is above a gradient threshold level. Rather, Goren teaches that

one should determine whether the line of sight and multipath echoes are separated and Diener teaches that one should use a peak detector to determine whether the detected power level is above a threshold. Neither, individually or in combination, teaches or fairly suggests a leading edge gradient based test.

Accordingly, it is submitted that claim 23 distinguishes patentably over Goren as modified by Diener.

J. Claim 24 Distinguishes Patentably Over Goren as Modified By Diener

Claim 24 further adds that in response to the leading edge gradient being below a gradient threshold level, the correlation processing operation is selected. Reading claims 22, 23, and 24 together, claim 24 calls for the signal which was originally selected for the leading edge processing operation to now be subject to the correlation processing operation in response to the leading edge gradient being below the gradient threshold value. Neither Goren at column 22, lines 43-59 nor Diener at column 8, lines 41-46 suggest applying a second test, much less a leading edge gradient based test, much less than a signal originally selected for the leading edge processing operation should be subject instead to the correlation processing operation based on the leading edge gradient test.

Accordingly, it is submitted that claim 24 distinguishes patentably and unobviously over Goren as modified by Diener.

K. Claim 27 is Patentable Over the References of Record

The Advisory Action asserts that claim 27 was rejected on pages 12 and 13 of the Office Action. The final rejection does discuss claim 27 at pages 12 and 13. However, the final rejection nowhere states either the statutory basis on which claim 27 is rejected nor over which reference(s) it is rejected. For purposes of these arguments, it will be assumed that the applicant should explain why claim 27 distinguishes patentably in the sense of 35 U.S.C. § 103 over Goren as modified by Diener.

Claim 27 calls for selecting a correlation processing operation in response to a signal level of the received signal being below a threshold value. (Claim 27, lines 9-11). By contrast, Goren performs a leading edge detection operation on either a multipath peak 1504 or a line of sight peak 1502 in response to determining that a correlation function quality is sufficient. Thus, Goren neither discloses nor teaches either applying a signal level test or selecting a correlation processing operation. Diener does disclose a peak detector which detects whether the power level is above a threshold, but makes no suggestion of a correlation processing operation.

Claim 27 further calls for testing whether a leading edge gradient is above a gradient threshold when the level of the received signal is above the threshold value. Goren and Diener both disclose a single test, i.e., the correlation function quality test 1575 of Goren or the peak power level test of Diener. Neither suggests a second test, much less applying the second test when the signal level is above a threshold value, much less applying a leading edge gradient test.

Claim 27 calls for selecting the leading edge processing operation in response to the leading edge gradient value being below a gradient threshold value. (Claim 27, line 15-17). Neither Goren nor Diener nor the combination thereof discloses or fairly suggests a leading edge gradient test, much less selecting the leading edge processing operation in response to the gradient threshold or the leading edge gradient value being below the gradient threshold value. Neither Goren nor Diener supply any rationale or teaching as to why having the leading edge gradient value below the gradient threshold value should be a basis for selecting a leading edge processing operation.

Further, claim 27 calls for selecting a correlation processing operation in response to the leading edge gradient value being above the gradient threshold value. Neither Goren nor Diener suggest selecting a

correlation processing operation, much less selecting a correlation processing operation in response to a leading edge gradient test, much less than the correlation processing operation should be selected in response to the leading edge gradient value being above the gradient threshold value. Neither Goren nor Diener supply any rationale or teaching as to why having the leading edge gradient value below the gradient threshold value should be a basis for selecting the leading edge processing operation.

Further, claim 27 calls for selecting a correlation processing operation in response to the leading edge gradient value being above the gradient threshold value. (Claim 27, lines 18-10).

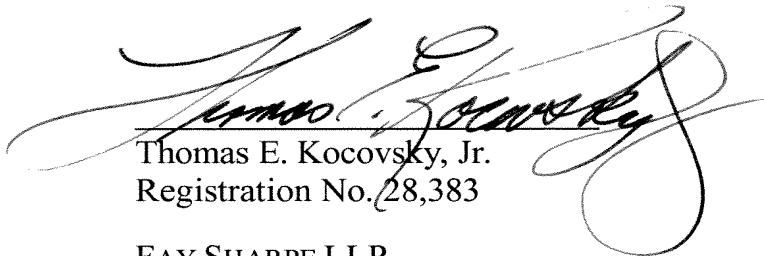
Accordingly, it is submitted that claim 27 distinguishes patentably and unobviously over the references of record.

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L. CONCLUSION

For the reasons set forth above, it is submitted that all claims meet the statutory requirements, no claim is anticipated by Goren, and that all claims distinguish patentably and unobviously over the references of record. An early reversal of the Examiner's rejections is requested.

Respectfully submitted,



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APPENDIX

X. CLAIMS SECTION (41.37(p))

The following listing of claims assumes that Amendment E accompanying this Appeal Brief, which corrects a minor wording error, has been entered.

1. (Cancelled)

2. (Rejected) A positioning method for a radio system, the method comprising:

receiving signals at a unit of the system;

5 applying at least one test on the received signals prior to processing the signals;

wherein applying the test comprises determining whether a signal level of the received signal is above a threshold value;

10 in accordance with the applied test, selecting one of: a correlation processing operation and a leading edge processing operation; and

performing the selected one of the correlation processing operation and the leading edge processing operation.

3. (Rejected) The method of claim 2, wherein applying the test further includes:

in response to the level of the received signal being below the threshold value, selecting the correlation processing operation.

4. (Rejected) The method of claim 2, wherein applying the test further includes:

when the level of the received signal is above the threshold 5 value, testing whether a leading edge gradient is above a gradient threshold value.

5. (Rejected) A positioning method for a radio system, the method comprising:

receiving signals at a unit of the system;

applying at least one test on the received signals to select a 5 processing operation on the signals, the operation being one of the following: a correlation processing operation and a leading edge processing operation;

wherein the applied test comprises:

determining whether a signal level of the 10 received signal is above a threshold value;

when the level of the received signal is below the threshold value, selecting the correlation processing operation;

when a leading edge gradient is below a 15 gradient threshold value, selecting the leading edge processing operation; and

effecting the selected operation.

6. (Rejected) The method of claim 4, wherein applying the test further includes:

in response to the leading edge gradient being above the gradient threshold value, selecting the correlation processing operation.

7-13. (Cancelled)

14. (Rejected) A positioning method for a radio system, the method comprising:

receiving signals at a unit of the system;

5 applying at least one test on the received signals prior to processing the signals to select a processing operation on the signals, the operation being one of the following: a correlation processing operation, and a leading edge processing operation;

then effecting the selected operation; and

measuring a gradient using the formula:

10 $i = Cdv/Dt$

Where, V=voltage of a signal waveform,

C=capacitance,

i=current, and

t=time.

15-16. (Cancelled)

17. (Rejected) A computer-readable medium carrying software code which when run on a computer controls the computer to perform the method of:

- receiving signals at a unit of a system;
- 5 applying at least one test on the received signals prior to processing the received signals to select among selectable processing operations for processing the signals, the selected processing operation being only one of: a correlation processing operation and a leading edge processing operation; and
- 10 then effecting only the selected one of the correlation and leading edge operations.

18-19. (Cancelled)

20. (Rejected) A positioning apparatus for a radio system, the apparatus comprising:

- a receiver which receives radio frequency signals which have potentially suffered at least one of noise degradation and multi-path degradation in a propagation environment;
- 5 testing means for testing the received radio frequency signals, which have not been subject to a correlation processing operation, for at least noise degradation and multi-path degradation and selecting one of:
- 10 a correlation processing operation and a leading edge processing operation based on the testing; and
- 15 a processor which subsequently processes the tested radiofrequency signals with the selected one of the correlation based processing operation and the leading edge processing operation.

21. (Rejected) The apparatus of claim 20, wherein the testing means includes:

means to determine whether a signal level of the received radio frequency signal is above a threshold value.

22. (Rejected) The apparatus of claim 21, wherein the testing means includes:

means which selects the correlation processing operation in response to the signal level of the received signal being below the level
5 threshold value.

23. (Rejected) The apparatus of claim 22, wherein the testing means includes:

means to test signals with signal level above the level threshold value to determine whether the signal has a leading edge
5 gradient above a gradient threshold value.

24. (Rejected) The apparatus of claim 23, wherein the testing means includes:

means which selects:
the leading edge processing operation in response to the
5 leading edge gradient being below the gradient threshold value, and
the correlation processing operation in response to the leading edge gradient being above the gradient threshold value.

25. (Cancelled)

26. (Rejected) The apparatus of any of claim 20, wherein the testing means includes:

means to cause the testing means to repeat the testing at predetermined intervals.

27. (Rejected) A positioning method for a radio system, the method comprising:

receiving signals at a unit of the system;

5 applying at least one test on the received signals prior to processing the signals to select between a correlation processing operation and a leading edge processing operation, the test including:

determining whether a signal level of the received signal is above a threshold value;

10 in response to the level of the received signal being below the threshold value, selecting the correlation processing operation;

when the level of the received signal is above the threshold value, testing whether a leading edge gradient value is above a gradient threshold value;

15 in response to the leading edge gradient value being below the gradient threshold value, selecting the leading edge processing operation; and

20 in response to the leading edge gradient value being above the gradient threshold value, selecting the correlation processing operation.

APPENDIX (Continued)

**XI. CLAIM SUPPORT AND DRAWING ANALYSIS SECTION
(41.37(r))**

1. (Cancelled)

2. A positioning method for a radio system, the method comprising:

receiving signals at a unit of the system; {p.4, l.2-5; p.11, l.3; Fig. 1, Step 1}

5 applying at least one test on the received signals prior to processing the signals; {p.4, l.21 - p.5, l.21; p.11, l.3-8; Fig. 1, step 3}

wherein applying the test comprises determining whether a signal level of the received signal is above a threshold value; {p.1, l. 24 - p.2, l.18; p.4, 21 - p.5, l.21; p.5, l.22; p.11, l.10-12}

10 in accordance with the applied test, selecting one of: a correlation processing operation and a leading edge processing operation; and {p.5, l.22 - p.6, l.22; p.5, l.19-21; p.7, l.1-20; p.7, l.24 - p.8, l.14; Fig. 1, step 12; Fig. 1, step 4, step 6, step 8, step 10}

15 performing the selected one of the correlation processing operation and the leading edge processing operation. {p.1, l.18; p.3, l.23; p.6, l.22; Fig. 1, step 10, step 12}

3. The method of claim 2, wherein applying the test further includes:

in response to the level of the received signal being below the threshold value, selecting the correlation processing operation. {p.5, l.22 - p. 6, l.22; **Fig. 1, step 11, step 12**}

4. The method of claim 2, wherein applying the test further includes:

when the level of the received signal is above the threshold value, testing whether a leading edge gradient is above a gradient 5 threshold value. {p.5, l.17-21; p.7, 1-8, l. 14; **Fig. 1, step 4, step 6, step 8**}

5. A positioning method for a radio system, the method comprising:

receiving signals at a unit of the system; {p.4, l.2-5; p.11, l.3; **Fig. 1, Step 1**}

5 applying at least one test on the received signals to select a processing operation on the signals, the operation being one of the following: a correlation processing operation and a leading edge processing operation; {p.4, l.21 - p.5, l.21; p.11, l.3-8; **Fig. 1, step 3**}; {p.5, l.22 - p.6, l.22; p.5, l.19-21; p.7, l.1-20; p.7, l.24 - p.8, l.14; **Fig. 1, 10 step 12; Fig. 1, step 4, step 6, step 8, step 10**}

wherein the applied test comprises:

determining whether a signal level of the received signal is above a threshold value; {p.1, l. 24 - p.2, l.18; p.4, 21 - p.5, l.21; p.5, l.22; p.11, l.10-12}

15 when the level of the received signal is below
the threshold value, selecting the correlation processing
operation; {p.5, 1.22 - p. 6, 1.22; Fig. 1, step 11, step 12}

when a leading edge gradient is below a gradient threshold value, selecting the leading edge processing operation; and {p.5, l.17-21; 20 p.7, 1-8, l. 14; Fig. 1, step 4, step 6, step 8}

effecting the selected operation. {p.1, l.18; p.3, l.23; p.6, l.22; **Fig. 1, step 10, step 12**}

6. The method of claim 4, wherein applying the test further includes:

in response to the leading edge gradient being above the gradient threshold value, selecting the correlation processing operation. {p.7, l.16-23; p.9, l.1-9; Fig. 1, step 6, step 7, step 9}

7-13. (Cancelled)

14. A positioning method for a radio system, the method comprising:

receiving signals at a unit of the system; {p.4, 1.2-5; p.11, 1.3; Fig. 1, Step 1}

5 applying at least one test on the received signals prior to processing the signals to select a processing operation on the signals, the operation being one of the following: a correlation processing operation, and a leading edge processing operation; {p.4, I.21 - p.5, I.21; p.11, I.3-8;
0 Fig. 1, step 3}; {p.5, I.22 - p.6, I.22; p.5, I.19-21; p.7, I.1-

20; p.7, l.24 - p.8, l.14; Fig. 1, step 12; Fig. 1, step 4, step 6, step 8, step 10}

then effecting the selected operation; and {p.1, l.18; p.3, l.23; p.6, l.22; Fig. 1, step 10, step 12}

15 measuring a gradient using the formula:

$$i = Cdv/Dt$$

Where, V=voltage of a signal waveform,

C=capacitance,

i=current, and

20 t=time. {p.7, l.28 - p.8, l.5; Fig. 1, step 6, step 8}

15-16. (Cancelled)

17. A computer-readable medium carrying software code which when run on a computer controls the computer to perform the method of: {p.2, l.6-13; p.9, l.10 - p.10, l.10; Fig. 2}

receiving signals at a unit of a system; {p.4, l.2-5; p.11, l.3;

5 Fig. 1, Step 1}

applying at least one test on the received signals prior to processing the received signals to select among selectable processing operations for processing the signals, the selected processing operation being only one of: a 10 correlation processing operation and a leading edge processing operation; and {p.4, l.21 - p.5, l.21; p.11, l.3-8; Fig. 1, step 3}; {p.5, l.22 - p.6, l.22; p.5, l.19-21; p.7, l.1-20; p.7, l.24 - p.8, l.14; Fig. 1, step 12; Fig. 1, step 4, step 6, step 8, step 10}

15 then effecting only the selected one of the correlation and leading edge operations. {p.1, l.18; p.3, l.23; p.6, l.22; Fig. 1, step 10, step 12}

18-19. (Cancelled)

20. A positioning apparatus for a radio system, the apparatus comprising: {p.9, l.12-15; Fig. 2, CPU 20}

5 a receiver which receives radio frequency signals which have potentially suffered at least one of noise degradation and multi-path degradation in a propagation environment; {p.2, l.22; p.9, l.16-21; Fig. 2, 23}

10 testing means for testing the received radio frequency signals, which have not been subject to a correlation processing operation, for at least noise degradation and multi-path degradation and selecting one of: {p.2, l.22 - p.10, l.8; Fig. 2, 25, 26, 27}

22; {p.5, l.22 - p. 6, l.22; Fig. 1, step 11, step 12}

15 a leading edge processing operation based on the testing; and {p.10, l.9-10; Fig. 2, 21; {p.5, l.17-21; p.7, l.1-8, l. 14; Fig. 1, step 4, step 6, step 8}

a processor which subsequently processes the tested radiofrequency signals with the selected one of the correlation based processing operation and the leading edge processing operation.

{p.10, l.9-10; Fig. 2, 21, 22}

21. The apparatus of claim 20, wherein the testing means includes:

means to determine whether a signal level of the received radio frequency signal is above a threshold value. {p.10, l.7-8; Fig. 2, 26}

22. The apparatus of claim 21, wherein the testing means includes:

means which selects the correlation processing operation in response to the signal level of the received signal being below the level 5 threshold value.

{p.10, l.7-8; fig. 2, 27}

23. The apparatus of claim 22, wherein the testing means includes:

means to test signals with signal level above the level threshold value to determine whether the signal has a leading edge 5 gradient above a gradient threshold value. {p.9, l.22 - p.10, l.6; Fig. 2, 25}

24. The apparatus of claim 23, wherein the testing means includes:

means which selects: {p.10, l.7-8; Fig. 2, 27}

the leading edge processing operation in response to the 5 leading edge gradient being below the gradient threshold value, and {p.9, l.12-15; Fig. 2, 21}

the correlation processing operation in response to the leading edge gradient being above the gradient threshold value. {p.9, I.12-15; fig. 2, 22}

25. (Cancelled)

26. The apparatus of any of claim 20, wherein the testing means includes:

means to cause the testing means to repeat the testing at predetermined intervals. {p.14, I.18-19}

27. A positioning method for a radio system, the method comprising:

receiving signals at a unit of the system; {p.4, I.2-5; p.11, I.3; Fig. 1, Step 1}

5 applying at least one test on the received signals prior to processing the signals to select between a correlation processing operation and a leading edge processing operation, the test including: {p.4, I.21 - p.5, I.21; p.11, I.3-8; Fig. 1, step 3}

10 determining whether a signal level of the received signal is above a threshold value; {p.1, I. 24 - p.2, I.18; p.4, 21 - p.5, I.21; p.5, I.22; p.11, I.10-12}

in response to the level of the received signal being below the threshold value, selecting the correlation processing operation; {p.1, I.18; p.3, I.23; p.6, I.22; Fig. 1, step 10, step 12}

15 when the level of the received signal is above the threshold value, testing whether a leading edge gradient

value is above a gradient threshold value; {p.7, l.16-27; p.9, l.1-9; **Fig. 1, step 6, step 8}**}

20 in response to the leading edge gradient value being below the gradient threshold value, selecting the leading edge processing operation; and {p.7, l.16-23; p.9, l.1-9; **Fig. 1, step 6, step 7**}

25 in response to the leading edge gradient value being above the gradient threshold value, selecting the correlation processing operation. {p.7, l.16-23; p.9, l.1-9; **Fig. 1, step 6, step 7, step 9**}

APPENDIX (Continued)

**XII. MEANS OR STEP PLUS FUNCTION ANALYSIS SECTION
(41.37(s))**

1. (Cancelled)

2. A positioning method for a radio system, the method comprising:

receiving signals at a unit of the system; {p.4, l.2-5; p.11, l.3; **Fig. 1, Step 1**}

5 applying at least one test on the received signals prior to processing the signals; {p.4, l.21 - p.5, l.21; p.11, l.3-8; **Fig. 1, step 3**}

wherein applying the test comprises determining whether a signal level of the received signal is above a threshold value; {p.1, l. 24 - p.2, l.18; p.4, 21 - p.5, l.21; p.5, l.22; p.11, l.10-12}

10 in accordance with the applied test, selecting one of: a correlation processing operation and a leading edge processing operation; and {p.5, l.22 - p.6, l.22; p.5, l.19-21; p.7, l.1-20; p.7, l.24 - p.8, l.14; **Fig. 1, step 12; Fig. 1, step 4, step 6, step 8, step 10**}

15 performing the selected one of the correlation processing operation and the leading edge processing operation. {p.1, l.18; p.3, l.23; p.6, l.22; **Fig. 1, step 10, step 12**}

3. The method of claim 2, wherein applying the test further includes:

5 in response to the level of the received signal being below the threshold value, selecting the correlation processing operation. {p.5, l.22 - p. 6, l.22; **Fig. 1, step 11, step 12**}

4. The method of claim 2, wherein applying the test further includes:

5 when the level of the received signal is above the threshold value, testing whether a leading edge gradient is above a gradient threshold value. {p.5, l.17-21; p.7, 1-8, l. 14; **Fig. 1, step 4, step 6, step 8**}

5. A positioning method for a radio system, the method comprising:

receiving signals at a unit of the system; {p.4, l.2-5; p.11, l.3; **Fig. 1, Step 1**}

5 applying at least one test on the received signals to select a processing operation on the signals, the operation being one of the following: a correlation processing operation and a leading edge processing operation; {p.4, l.21 - p.5, l.21; p.11, l.3-8; **Fig. 1, step 3**}; {p.5, l.22 - p.6, l.22; p.5, l.19-21; p.7, l.1-20; p.7, l.24 - p.8, l.14; **Fig. 1, step 12; Fig. 1, step 4, step 6, step 8, step 10**}

10 wherein the applied test comprises:

determining whether a signal level of the received signal is above a threshold value; {p.1, l. 24 - p.2, l.18; p.4, 21 - p.5, l.21; p.5, l.22; p.11, l.10-12}

6. The method of claim 4, wherein applying the test further includes:

in response to the leading edge gradient being above the gradient threshold value, selecting the correlation processing operation.

7-13. (Cancelled)

14. A positioning method for a radio system, the method comprising:

receiving signals at a unit of the system; {p.4, 1.2-5; p.11, 1.3; Fig. 1, Step 1}

5 applying at least one test on the received signals
prior to processing the signals to select a processing
operation on the signals, the operation being one of the
following: a correlation processing operation, and a leading
edge processing operation; {p.4, l.21 - p.5, l.21; p.11, l.3-8;
10 Fig. 1, step 3}; {p.5, l.22 - p.6, l.22; p.5, l.19-21; p.7, l.1-

20; p.7, l.24 - p.8, l.14; Fig. 1, step 12; Fig. 1, step 4, step 6, step 8, step 10}

then effecting the selected operation; and {p.1, l.18; p.3, l.23; p.6, l.22; Fig. 1, step 10, step 12}

15 measuring a gradient using the formula:

$$i = Cdv/Dt$$

Where, V=voltage of a signal waveform,

C=capacitance,

i=current, and

20 t=time. {p.7, l.28 - p.8, l.5; Fig. 1, step 6, step 8}

15-16. (Cancelled)

17. A computer-readable medium carrying software code which when run on a computer controls the computer to perform the method of: {p.2, l.6-13; p.9, l.10 - p.10, l.10; Fig. 2}

receiving signals at a unit of a system; {p.4, l.2-5; p.11, l.3;

5 **Fig. 1, Step 1}**

applying at least one test on the received signals prior to processing the received signals to select among selectable processing operations for processing the signals, the selected processing operation being only one of: a 10 correlation processing operation and a leading edge processing operation; and {p.4, l.21 - p.5, l.21; p.11, l.3-8; Fig. 1, step 3}; {p.5, l.22 - p.6, l.22; p.5, l.19-21; p.7, l.1-20; p.7, l.24 - p.8, l.14; Fig. 1, step 12; Fig. 1, step 4, step 6, step 8, step 10}

15 then effecting only the selected one of the correlation and leading edge operations. {p.1, l.18; p.3, l.23; p.6, l.22; Fig. 1, step 10, step 12}

18-19. (Cancelled)

20. A positioning apparatus for a radio system, the apparatus comprising: {p.9, l.12-15; Fig. 2, CPU 20}

5 a receiver which receives radio frequency signals which have potentially suffered at least one of noise degradation and multi-path degradation in a propagation environment; {p.2, l.22; p.9, l.16-21; Fig. 2, 23}

10 testing means for testing the received radio frequency signals, which have not been subject to a correlation processing operation, for at least noise degradation and multi-path degradation and selecting one of: {p.2, l.22 - p.10, l.8; Fig. 2, 25, 26, 27}

 a correlation processing operation and {p.10, l.9-10; Fig. 2, 22; {p.5, l.22 - p. 6, l.22; Fig. 1, step 11, step 12}}

15 a leading edge processing operation based on the testing; and {p.10, l.9-10; Fig. 2, 21; {p.5, l.17-21; p.7, 1-8, l. 14; Fig. 1, step 4, step 6, step 8}}

 a processor which subsequently processes the tested radiofrequency signals with the selected one of the correlation based processing operation and the leading edge processing operation.

{p.10, l.9-10; Fig. 2, 21, 22}

21. The apparatus of claim 20, wherein the testing means includes:

means to determine whether a signal level of the received radio frequency signal is above a threshold value. **{p.10, l.7-8; Fig. 2, 26}**

22. The apparatus of claim 21, wherein the testing means includes:

means which selects the correlation processing operation in response to the signal level of the received signal being below the level threshold value.

{p.10, l.7-8; fig. 2, 27}

23. The apparatus of claim 22, wherein the testing means includes:

means to test signals with signal level above the level threshold value to determine whether the signal has a leading edge gradient above a gradient threshold value. **{p.9, l.22 - p.10, l.6; Fig. 2, 25}**

24. The apparatus of claim 23, wherein the testing means includes:

means which selects: **{p.10, l.7-8; Fig. 2, 27}**

the leading edge processing operation in response to the leading edge gradient being below the gradient threshold value, and **{p.9, l.12-15; Fig. 2, 21}**

the correlation processing operation in response to the leading edge gradient being above the gradient threshold value. {p.9, l.12-15; fig. 2, 22}

25. (Cancelled)

26. The apparatus of any of claim 20, wherein the testing means includes:

means to cause the testing means to repeat the testing at predetermined intervals. {p.14, l.18-19}

27. A positioning method for a radio system, the method comprising:

receiving signals at a unit of the system; {p.4, l.2-5; p.11, 5 l.3; Fig. 1, Step 1}

applying at least one test on the received signals prior to processing the signals to select between a correlation processing operation and a leading edge processing operation, the test including: {p.4, l.21 - p.5, l.21; p.11, l.3-8; Fig. 1, step 3}

10 determining whether a signal level of the received signal is above a threshold value; {p.1, l. 24 - p.2, l.18;p.4, 21 - p.5, l.21; p.5, l.22; p.11, l.10-12}

15 in response to the level of the received signal being below the threshold value, selecting the correlation processing operation; {p.1, l.18; p.3, l.23; p.6, l.22; Fig. 1, step 10, step 12}

when the level of the received signal is above the threshold value, testing whether a leading edge gradient value is above a gradient threshold value; {p.7, l.16-27; p.9, l.1-9; Fig. 1, step 6, step 8}

20 in response to the leading edge gradient value being below the gradient threshold value, selecting the leading edge processing operation; and {p.7, l.16-23; p.9, l.1-9; **Fig. 1, step 6, step 7**}

25 in response to the leading edge gradient value being above the gradient threshold value, selecting the correlation processing operation. {p.7, l.16-23; p.9, l.1-9;
Fig. 1, step 6, step 7, step 9}

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APPENDIX (Continued)

XIII. EVIDENCE SECTION (41.37(t))

Not Applicable.

APPENDIX (Continued)

XIV. RELATED CASES SECTION (41.37(u))

None.